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ABSTRACT

A distinction can be made between the term "creativity" and creative thinking skills. Creativity typically refers to a talent for original and masterful production in the arts and sciences, and there is scant evidence that teachers have any influence on creativity of this kind. Creative thinking refers to a group of six thinking skills that if encouraged by teachers and practiced by students might lead to the emergence of creative traits; the content of creative thinking is the skills themselves. Awareness is the skill of noticing on purpose; awareness promotes data gathering behavior, and data are the "stuff" of thinking. Fluency is skill in generating multiple responses to a problem where the criterion is quantity. Perseverance means becoming self disciplined in ways appropriate to the time and energy required for a problem solving task. Elaboration is a skill apparent in the preference for complexity. Speculation skills make possible the generation of hypotheses. Curiosity is manifested behaviorally in attempts at answering "what if" questions. (The paper concludes with a chart that suggests several student activities related to reading instruction which promote the application and practice of each of these six thinking skills.) (DS)

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Developing Creative Thinking Skills in Early Childhood

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CREATIVITY - CREATIVE THINKING SKILLS

There are two reasons for making a seemingly artificial distinction between creative traits and creative thinking skills. First, the literature at least implies that such a discrimination has theoretical merit. Investigators and other writers have amassed a sizeable amount of literature that attempts to articulate what creativity means, and by implication, some theoretical distinction between creativity as a trait or collection of traits, and another way to view something akin to creativity. The latter is a collection of skills that, given mastery by an individual, might lead to the emergence of creative traits.

The second reason for the discrimination is much more pragmatic. It seems that many people's perception of creativity is such that it cannot be realistically handled or influenced in the classroom. For example, people tend to define creativity within the ruberic of the aesthetics and science, then limit its manifestation to either talent and composition, or the scientific and artistic superstars. Creativity becomes synonomous with the beautiful picture and sound, or the musical composition and an especially gripping story, all concocted by individuals whose names are recorded in granite and are in control of awesome powers. While somewhat dramatic, the

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example illustrates why many people avoid direct and systematic attention to creativity. After all, how many of us are not intimidated by the Mosarts and Einsteins? Further, even if we knew how to nurture them, the statistical possibility that such creative superstars are hidden in our third grades in sufficient numbers to spend time on nurturance is microscopic. Thus the term "creativity" tends to limit our vision of instructional potence; we keep our eyes peeled for a budding superstar, but unintentionally draw the circle of creative possibility so small that all but the most precocious learners are limited to serendipitous occurances of creative behavior. Our common perception of creativity demands that we view the field differently if creative experiences are to be systematically available to the broad range of learners.

WHAT DO TEACHERS INFLUENCE?

There is a factor of control implicit in any discussion of creativity in the educational process. Special Educators use the term, "time on task", which connotes clock time, often measured in seconds, during which learners are engaged with a task, as distinguished from time spent in arithmetic period, or time in school.

Accumulated time on task eventually leads teachers to an awareness of that over which they have some control and that over which they have little or none. For example, some teachers entertain the illusion that hungry or hostile learners can be nurtured in a warm and loving classroom climate; time on task tells them that the hunger and hostility are largely circumstantial and often not school-based. The teacher becomes increasingly realistic, and typically more effective, as (s)he decreases the devotion of enormous professional energy to factors over which the school has little or no control.

Creativity is often not nurtured in school, not because teachers choose to ignore creativity-nurturing, but because the creativity that teachers think they are nurturing is at least ill-understood and usually so broadly conceived that teachers have no control over it anyway. Reference here is made, for example, to creativity in the sense of "follow your drummer" when the fact is that in American school curriculum, defined and measured as it is by circumscribed assessment packages, there is little realistic opportunity for such freedom. Hence, the teacher envisions the nurturance of creativity-as-behavioral freedom, but has little or no control over such a conception of creativity, and therefore does not nurture creativity at all.

Attention to creativity in school is heavily dependent upon teachers who systematically nurture factors that they can nurture, those factors over which they have some control. That brings us back to the distinction between creativity and creative thinking skills, and the role that teachers can play in each definitional perspective.

There is scant evidence that teachers have had any influence over the creations of people who are widely or publically defined as creative. However, there is considerable evidence that mastery of creative thinking skills has been instrumental in the creations by creative people, and there is sufficient evidence pointing to teacher's control over learner's opportunity to master creative thinking skills to merit a skills conception of creativity in the classroom.

HOW DO OR HOW CAN TEACHERS INFLUENCE CREATIVE THINKING SKILLS?

The question of influence over the development of creative thinking skills hinges finally, as with other dimensions of school content, upon three factors: defining content, assuming responsibility, and a basic principle of learning psychology.

Defining Content

The content to which a concern for creative thinking skills is addressed is the skills. The extent to which rationally identified skills can be operationally defined dictates the extent to which those skills can be implanted in instructional objectives over which teachers have influence. That is largely what defines a potentially effective reading program; it defines other potentially effective instructional programs as well.

The creative thinking theory assumed in this paper[1] is that people do not think in a vacuum; they think with largely consciously available data. Those data must be managed or manipulated by the thinker, and the thinker, in turn, generates increasingly more stable speculations.

Awareness means learning how to become systematically open to consciously selected or directed stimulation. It means to notice on purpose. Awareness skill in this context is not subliminal nor serendipitous; it is self or other directed and focused on the specific stimuli. Awareness skill promotes data gathering behavior; the data are the stuff on which thinking behaviors are based.

A specific awareness skill is fluency. Fluent thinking behaviors are apparent in generating multiple responses to a problem or question, where the criterion is quantity, not quality. The relationship to awareness is a purposeful "rummaging" through one's own consciousness for the purpose of systematically isolating data that are internally available.

Perseverance means learning how to become self disciplined in the ways necessary for and appropriate to the time and energy requirements associated with almost any thinking or problem solving task. Perseverance is largely self-induced but often necessarily promoted by outside influence. Perseverance is not an innate constellation of behaviors employed when faced only with self-selected or interesting problems; it is a learned constellation of behaviors that can be purposefully mobilized by learners when faced with the necessity to do so.

One specific perseverance skill is elaboration. Elaborative thinking is apparent in behaviors of adding on to or embellishment. The relationship to perseverance is the necessity of "sticking to it" that so often comes with embellishing behaviors.

An attitude associated with perseverance is the willingness to approach complex or chaotic situations, referred to in the creativity literature as "preference for complexity"(4). Since without readily conscious solutions, all problems are complex and they never get solved unless the potential solver approaches the complexity. Such a preference (attitude) makes possible the approach behaviors (3) necessary in the solution of almost all problems.

Speculation skills are readily associated by most people with creativity. Such skills make possible the formulation of hypotheses, the testing of which lead to the elimination of false possibilities, hence the eventual solution.

A specific speculative skill is curiosity, manifest behaviorally in attempts at answering "what if?" questions. The curious thinker is able to formulate possible implications and then consider, eventually test their feasibilty.

The relevant content of creative thinking, then, is skills, and the skills are associated with awareness, perseverance and speculation, all as defined above.

Assuming Responsibility

There are two foci necessarily under construction in a discussion of responsibility. First, teachers must learn to assume responsibility for causing creative thinking to occur among learners in the same sense that teachers have assumed responsibility for causing reading to occur among learners. That means giving the kind of credence to creative thinking that will promote plans, schedules, instruction and application. If reading skill emerges at least in part because teachers assume professional responsibility for causing it to emerge, and there is evidence to that effect, then creative thinking will emerge for precisely the same reasons.

Second, learners must learn to assume responsibility for engaging seriously in teacher's efforts toward causing creative thinking. Two educational dynamics must occur in school if learning is expected; one is teaching for which teachers are responsible, and the other is learning for which learners are responsible. Learners must learn to engage - openly and seriously - in the educational process. Teaching is not the cause of learning; learner action is the cause of learning. Learning is the learner's responsibility.

The chart below[(2)] shows how responsibilities in the creative thinking domain can be articulated and related. Professional educators must learn how to mobilize such responsibilities for purposes of creative thinking just as they have for reading, mathematics and standing in line.

A Principle of Learning

Whether reflected in esoteric cocktail party discussions or not, educators nonetheless know some things about how people learn. The pop psychology might demerrer, but the fact is that every organism studied under virtually every condition has learned essentially what it does, not necessarily what it is taught. There is massive evidence to confirm that people learn what they do and precious little to indicate that they predictably learn what their teachers intend to teach. The implication is clear: learners learn to read largely by reading, and they will learn to think creatively largely by doing so.

In sum then, the question of how do or how can teachers influence creative thinking skill development is answered in a practical way. They influence creative thinking skill development by facing these factors:

1) they know what the target skills are;

2) they objectify the skills as learner behavior;

3) they assume responsibility for making creative thinking occur;

4) they cause learners to assume responsibility for using creative thinking skills; and

5) they decline the inclination to teach creative thinking skills, favoring instead a strategy of managing the environment so as to influence learners to use the intended skills.

While the five factors above may not appear feasible, readers should consider that those five factors are precisely what we have learned about content skills development, specifically that which we honor so highly - reading.

Thinking Skill	Meaning or Explanation	Example or Behavior	Application to Reading	Source for Application
Awareness	Noticing Paying Attention Openness Sensitivity to Stimulation	Purposely attend to the configuration of symbolic or figural data	Finding symbols from among distractors	42 Ways
			Notice the configuration of various symbols	52 Ways
			Notice how certain letters behave when they are associated with other letters	Reading Series
			Notice how syntactic structures affect or promote meaning	Miscue Reading Close Procedure
Fluency	The skill of generating multiple ideas in response to a question or problem	Making an oral or written list	Making a list of words that begin like pit	Thinking Kabyn
			Making a list of words that contain the spelling pattern /ake/	Thinking Kabyn
			Thinking of reasons why certain things occur in a story	Reading Series
			Brainstorming setting, theme, title, and characters from a book jacket illustration	Frank F. Williams Portland State University

Thinking Skill	Meaning or Explanation	Example or Behavior	Application to Reading	Source for Application
Perseverance	Time and energy on complex tasks	Seeking solutions to problems with or in print	Teacher writes messages on chalk board, the messages systematically missing certain kinds of letters (vowels, selected consonants, etc.)	Teaching for Thinking
	Approach behaviors toward complexity	Code cracking behavior		
			Doublets	Complete Works of Lewis Carroll
				62 Ways
			Rewriting for youngers	72 Ways
Elaboration	Adding to or embellishment	Extending an idea	Learner developed phonic strips	Teaching for Thinking
		Finishing a story		
		Building word pyramids		
			Word Trees	62 Ways
			Narration Balloons	62 Ways

Thinking Skill	Meaning or Explanation	Example or Behavior	Application to Reading	Source for Application
Speculation	Forming and testing hypotheses	Trying possibilities for "good fit"	How do words change when letters are changed?	Structure of Intellect
	Rejecting false possibilities	Experimentation		EST
				CST
	Imaginative Brainstorming		How does meaning change when syntax is manipulated?	Miscue Reading
			Character Identification	Teaching for Thinking
Curiosity	Working with possibilities and implications	Responding to "What if?" questions	Oral language - language experience story writing	52 Ways
				Language Experience Technology
			Predicting story endings	Reading Series
			Predicting story beginnings	Teaching for Thinking

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